

**BIOLOGICAL ASSESSMENT**  
**Blackfeet Community Water Project**  
**Blackfeet Indian Reservation, Glacier County, Montana**

**INTRODUCTION**

Provisions of the Endangered Species Act of 1973 (as amended) direct federal agencies to seek to conserve threatened and endangered species and to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of threatened or endangered species, or result in adverse modification of their critical habitats. This Biological Assessment (BA) documents the assessment of possible effects from the proposed Blackfeet Community Water Project on the Blackfeet Indian Reservation to the threatened Canada lynx, grizzly bear, piping plover, bald eagle, Ute ladies' tresses, water howellia, and endangered gray wolf. The swift fox and mountain plover, candidates for listing under the Endangered Species Act are also addressed in this BA.

**GENERAL DESCRIPTION OF THE PROJECT AREA**

The segment of the project between Lower Two Medicine Lake and East Glacier lies entirely within the Southeast Glacier Bear Management Unit (BMU) of the Grizzly Bear Recovery Zone. The Southeast Glacier BMU extends from the alpine habitats along Continental Divide in Glacier National Park to aspen parklands and fescue grasslands at lower elevations on the east side of the Recovery Zone.

The southern portion of Two Medicine Lake (a reservoir) and the reach of Two Medicine River downstream from the lake are within the project area. There are many wetlands and beaver dams along the Two Medicine River. Montana Route 49, from East Glacier to St. Mary, closely parallels the river in the northern part of the project area.

The riparian areas of the Two Medicine River provides important habitat for grizzly bear, white-tailed deer, red fox, raccoon, and semi-aquatic mammals (mink, beaver, and muskrat) and may be inhabited by the rare Preble's shrew. Grizzly bears regularly use riparian habitat along the Two Medicine River.

Habitats outside of the Grizzly Bear Recovery Zone consist mostly of native prairie grasslands, riparian areas, and wetlands. Grassland habitats are predominantly native prairie communities dominated by rough fescue and Idaho fescue with a diversity of other herbaceous species.

The segment of the pipeline extending from the Two Medicine River Crossing to Browning, traverses steep terrain on the east side of the Two Medicine River. The pipeline would supply water to a 500,000-gallon storage tank on the top of the ridge (elevation 5,265 feet), about 0.75 miles from Two Medicine River. From the reservoir, the pipeline would follow a ridge in a northeasterly direction for about four miles. The

pipeline then would descend to rolling terrain interspersed with potholes for the about 5 miles. At the junction of Highway 89, the proposed pipeline would connect with an existing water pipeline for about 1.5 miles into Browning.

The portion of the study area between Browning and the east edge of the Grizzly Bear Recovery Zone includes a grassland-wetland ecosystem with high ecological functions and values (Lesica 1993 and 1989). In this portion of the study area, many wetlands, primarily marshes and potholes, occur in a matrix of native grassland. Wetlands are especially diverse because of the large number of plants adapted to salinity gradients varying from fresh to saline. Every effort will be made to avoid wetlands to protect these important habitats.

The project area supports a high diversity of wildlife including: moose, elk, black bear grizzly bear, mule deer, white-tailed deer, Canada lynx, swift fox, coyote, red fox, striped skunk, bobcat, ground squirrel, bald eagle, golden eagle, prairie falcon, red-tailed hawk, northern harrier, kestrel, and northern goshawk. Gyrfalcon and snowy owl are also periodic winter visitors, particularly during severe winters in northern Canada.

Fisheries within the study area are present in Two Medicine Lake and Two Medicine River. The Two Medicine River has populations of rainbow, brown, and brook trout, mountain whitefish, burbot, longnose dace, pearl dace, white sucker, and mottled sculpin. Two Medicine Lake is stocked with non-native trout and is managed as a recreational fishery. There is little or no reproduction of fish stocked in the lake. Historically, westslope cutthroat trout were present in the reach of Two Medicine River inundated by construction of the reservoir. Any cutthroat trout that are present in the Two Medicine Lake are hybrids with rainbow trout.

## **PROJECT DESCRIPTION**

### **Project Facilities**

The proposed Blackfeet Community Water Project would be constructed on the Blackfeet Indian Reservation and would provide a municipal water supply to Browning and East Glacier, Montana. The project would consist of a water intake at Lower Two Medicine Reservoir; a water treatment plant about 0.5 miles east of Two Medicine River; a 500,000-gallon storage tank near the treatment plant; a 200,000-gallon storage tank near East Glacier; and pipelines to carry water to Browning and East Glacier. The entire pipeline system would be 16.3 miles, of which 6.6 miles would be in the Southeast Glacier BMU. The intake facility, water treatment plant, and storage tanks would also be in the Southeast Glacier BMU. Total acreage that would be disturbed by the pipeline system would be about 99 acres, of which 41 acres would be in the Southeast Glacier BMU. The water intake, water treatment plant, and storage tanks would disturb another 2-3 acres, all of which would be in the BMU.

The Bureau of Indian Affairs constructed two Medicine Dam and Reservoir for irrigation. The Reservoir has a total capacity of 25,120 acre-feet and an active capacity of 19,760

acre-feet. The active capacity of the reservoir is the amount of water available for irrigation. The inactive storage capacity of the reservoir is 5,360 acre-feet.

The proposed intake structure, a USF Johnson Intake Screen, is a tee-shaped screen with 0.125-inch slot openings with an open surface area of 50 percent. The intake screen would have a diameter of 18 inches and has the potential to produce a minimum of 3,000 gallons per minute. The intake screen would be fitted with an air backwash system to allow cleaning of the screen. The intake building would have four intake pumps. Preliminary design calls for submersible pumps, each with a capacity of 1000 gallons per minute.

The intake water main from the intake screen to the intake pump house would be either 20-inch HDPE pipe or 18-inch Ductile iron pipe. The intake main from the pump house to the water treatment plant would be 16-inch HDPE pipe. The water main supplying East Glacier would be 10-inch PVC pipe. All pipes would have a minimum burial depth of 6 feet. Excavation of trenches would be done using excavators and backhoes.

A 50-foot right-of-way (ROW) would be obtained prior to construction. Pipeline construction through forested land the entire ROW would be cleared of trees and other vegetation using a bulldozer.

After completion of construction, the ROW would be reclaimed with native trees, shrubs and herbaceous species. A 10-foot swath over the pipeline would be seeded with herbaceous species so that the pipeline could be accessed. Erosion control measures would include placement of silt fences and straw bales.

### **Environmental Compensation and Commitments**

To compensate for potential impacts to and assist in conserving grizzly bears, bends (i.e., “dog legs”) would be made in the pipeline every 0.25 – 0.5 miles. These bends would restrict visibility (i.e., long sight distances) along the ROW. Long sight distances increase mortality risk associated with illegal shooting of grizzly bears.

To prevent vehicle access to the pipeline ROW, signs would be posted at access points to inform the public that vehicles are not allowed on the ROW. In addition locked gates or other structures would be installed to discourage vehicular access in both summer and winter. The Blackfeet Department of Fish and Wildlife would enforce closure of the ROW to vehicular access.

To mitigate for the potential of the project to increase vehicle and pedestrian access into the study area (could adversely affect lynx and grizzly bear), 13.2 miles of existing road (2:1 ratio for 6.6 miles of pipeline in BMU) in or near the project area would be closed to motor vehicles including snowmobiles. The Blackfeet Department of Fish and Wildlife would enforce these closures.

Approximately, 80 acres in Section 28 (T32N, R13W), Lots 5, 13, and 14 (to compensate for 43 acres disturbed in BMU) would be managed a conservation area for grizzly bear, bald eagle, and lynx. This parcel of land is on the south shore of Two Medicine Reservoir and abuts Glacier National Park. No development (e.g. timber harvest, roads, grazing, or residential) would be allowed in this parcel for 25 years.

During construction, workers would not be allowed have guns on the project area. All human waste including food and other bear attractants would be removed daily from construction sites. No camping by construction workers would be allowed in the project area.

Construction contracts will be issued in a manner to expedite construction as timely as possible. Reasonable construction completion times will established to cause minimal disturbances to the wildlife in the area of the project. Substantial liquidated damages will be assessed if the construction is not completed in the allotted time allowed for in the contract.

Currently, the Red Eagle Campground at Two Medicine Lake consists of a large area of undefined campsites. Consequently, camping takes place over a large area and refuse is not easily managed. Future use of Red Eagle Campground would be restricted to designated camping areas. Primitive roads allowing people to drive from the campground into adjacent forested areas would be closed. Restricting camping to designated sites would allow refuse and other bear attractants and un-authorized traffic to be more effectively managed.

Garbage facilities in the community of East Glacier and at Red Eagle Campground are attractants to bears. In 2001, at least 3 grizzly bears were visiting dumpsters in East Glacier and management actions on black bears in garbage-related problems occur annually in East Glacier and at Red Eagle. These bears are usually relocated or destroyed because they have become habituated to people and are dangerous. The garbage collection facilities now in place are a potential mortality risk for grizzly bears in the area.

Mitigation measures for this project will include providing bear-resistant garbage facilities in East Glacier and Red Eagle Campground. The garbage collection site will be centralized and a bear-proof fence will be built around the site in East Glacier. A garbage compactor will be installed at Red Eagle Campground to prevent bears from accessing the garbage.

## **THREATENED, ENDANGERED AND CANDIDATE SPECIES**

Threatened and endangered species include species listed or proposed for listing under the Endangered Species Act of 1973, as amended. Under Section 7 of the Endangered Species Act, activities conducted, sponsored, or funded by federal agencies must be reviewed for their effects on federally listed species or species proposed for listing a threatened or endangered.

Based on the February 1999 USFWS list of threatened, endangered, and proposed species, the USFWS December 1995 list of threatened, endangered, and proposed species that may be present in Montana counties, and range/habitat information, the following listed and proposed species may occur in the general project area.

- Grizzly bear (*Ursus arctos*), threatened
- Bald eagle (*Haliaeetus leucocephalus*), threatened
- Gray wolf (*Canis lupus*), endangered
- Canada lynx (*Lynx canadensis*), threatened
- Piping plover (*Charadrius melodius*), threatened
- Mountain plover (*Charadrius montanus*), proposed threatened
- Swift fox (*Vulpes velox*), candidate for threatened status
- Ute ladies' tresses (*Spiranthes diluvialis*), threatened
- Water howellia (*Howellia aquatilis*), threatened

### **Grizzly Bear (Threatened)**

Grizzly bears inhabit the western portion of the Blackfeet Reservation in forested areas and prairie-riparian complexes adjacent to forested areas. A reliable estimate of grizzly bear numbers on the Reservation is not possible at this time because of insufficient data (Dan Carney pers. com. 2001).

As more secure mountainous habitats of the western part of the Reservation become more densely populated there is a tendency for bears to move into adjacent, more open prairie habitats. Prior to extensive human settlement of prairie habitats in the Northern Great Plains, grizzly bears were relatively common members of the prairie fauna. Reel et al (1989), Interagency Grizzly Bear Committee (1987), and U.S. Fish and Wildlife Service (1990) address life history information and habitat use by grizzly bears. These documents are incorporated by reference into this BA.

The proposed project from Two Medicine Lake to East Glacier (i.e., intake, pumping station, water treatment plant, and about 6.6 miles of water pipeline) is within the Southeast Glacier BMU of the Grizzly Bear Recovery Zone.

Data collected on grizzly bears and grizzly bear habitat in the project area, over a 13-year period, indicate that there is extensive use of the project area, from Two Medicine Lake to East Glacier (and east of Two Medicine River), by grizzly bears (Dan Carney pers. com. 2001). Numerous locations of radio-instrumented grizzlies have been documented within the western part of the project area. The project area lies within the home ranges of at least six adult female grizzlies (Dan Carney pers. com. 2001).

In spring when, snow covers vegetation at high elevations, grizzly bears leaving their dens, seek food at lower elevations (e.g., grasses, other green vegetation, and carrion from livestock and wildlife). During spring and early summer when food is scarce at high elevations, grizzly bears move onto to prairie habitats where favored grizzly foods (grasses, sedges, and other herbaceous species) are abundant. Some bears move back to

higher elevation as the prairie habitats become drier and montane habitats become free from snow. Other bears remain all summer at low elevations, where local patches of dense cover provide security from human activity.

Habitat maps generated by satellite imagery and compared with locations radio-collared grizzly bears indicate that the western part of the project area is high-quality spring, summer, and fall grizzly bear habitat. The northern part of the pipeline system (from Two Medicine Lake for 3 miles southward) traverses mixed conifer forest. The portion of the project, extending from East Glacier north for about 1-2 miles, is comprised of especially high-value aspen and cottonwood habitats. Aspen and cottonwood habitats are prime spring and summer habitat for grizzlies. The mixed conifer habitats are usually more important for grizzlies in fall when berries ripen. The interspersed conifer forest, riparian areas, and aspen stands within the project area increases the value of the habitat for bears during all seasons.

### **Effects Analysis**

The proposed project may affect the grizzly bear through the combined effects of direct habitat loss or alteration, fragmentation of habitat, reduced habitat effectiveness and security, and the direct and indirect risk of bear mortalities or removal from the population. Impacts to bears could occur during the construction phase and operational phases of the proposed project. Construction impacts would be short term.

#### ***Habitat Loss and Alteration***

The proposed project would require clearing a 50 foot-wide right-of-way (ROW) through high-quality grizzly bear habitat in the Grizzly Bear Recovery Zone. Approximately 41 acres of mixed conifer, aspen, and native grassland habitat would be removed during construction of the pipeline system (14.8 acres of mixed conifer, 8.3 acres of aspen, and 17.9 acres of native grassland).

Currently, habitat in the project area is degraded by primitive roads, seismic lines constructed 30 or more years ago, and highway from East Glacier to St. Mary. Most of the roads in the project area are primitive two-track trails. The proposed pipeline route in the BMU would follow 2.2 miles or be close to (i.e., within 0.25 miles) 4.4 miles of existing roads. None of the proposed pipeline in the BMU would be more than 0.25 from an existing road. Some of these roads follow old seismic lines and others were probably constructed for petroleum exploration, logging, or recreation access.

Generally, it is believed that roads and associated traffic, even at low traffic levels, tend to displace grizzly bears away from suitable habitat within 0.25 – 0.50 miles of open roads. Although not all bears are displaced by traffic on roads, bears most sensitive to human activities avoid habitat near roads.

Grizzly bears could also be displaced from habitat around permanent facilities such as the water intake and water treatment plant. These facilities will be visited daily for operation

and maintenance. The facilities are in close proximity of Highway 49 such that any additional effects will be minimal. Barriers will be placed along the pipeline ROW to prohibit motorized vehicle activity. According to cumulative effects analysis protocols developed by the U.S. Forest Service (1988 and no date), a low-intensity point-source of noise and human activity may displace grizzly bears from habitat within 0.5 – 1.0 miles from the source.

A significant aspect of grizzly bear behavioral responses to human-associated disturbance is the variation associated with sex, age, and reproductive status. Higher proportional use of habitats near roads and human facilities has been observed in security-conscious bears (e.g., females with cubs or yearlings), subordinate bears (subadults), and a coinciding use of primary habitats farther from roads by adult male bears (Mattson et al 1987, McLellan and Shackleton 1989). Particularly in populations at or near regional carrying capacity, it is thought that security-conscious bears utilize productive habitats near human activities as a refuge from dominant, aggressive adult males, who select habitats farther away from human activities. While individual females may avoid interactions with adult males through this behavior pattern, mortality risk increases from other causes such as removal of problem or habituated bears, poaching, and collisions with vehicles. Because the project area appears to have a high proportion of use by females with young, it is likely that construction and operation of the project would have the greatest effect on this population segment.

The pipeline ROW would not be constructed as a road, but it is likely that it would quickly be explored as a road by recreational drivers with vehicles capable of driving on an unimproved surface. To prevent vehicles from driving on the ROW, signs would be posted that driving on the ROW is prohibited. Also, barriers (e.g., gates or “Kelly bumps”) would be installed at points where vehicles would have access to the ROW. The Blackfoot Fish and Wildlife Department would enforce road closure restrictions.

In addition to preventing the ROW from being used as a primitive road, 13.2 miles of existing road would be closed to reduce vehicle access in and near the project area. Existing roads would have signs posted and gates installed to prevent vehicle access.

In addition to direct and indirect habitat loss, removal of a linear strip of habitat for the pipeline ROW would allow longer sight distances through important grizzly bear habitat. Longer sight distances would tend to encourage illegal shooting of bears because bears could be seen more easily and access along the ROW would be improved for both pedestrians. To reduce mortality risk from increased sight distance along the ROW, bends (i.e., “dog legs”) would be placed in the pipeline every 0.25-0.5 miles along the ROW. In addition, shrubs and trees would be allowed to encroach on the sides of the ROW. A ten-foot wide strip, directly over the pipeline would be the only part of the ROW that would be kept free of large woody vegetation.

Mortality risk would also increase, especially in spring, as a result of clearing of a linear strip through forested habitat. As the ROW becomes revegetated, it is likely that grasses and forbs would be the dominant vegetative cover. Grasses and forbs are especially

important grizzly bear food in spring when plants under forest canopies have not yet greened up and become succulent.

It is likely that bears would be attracted to grasses and other succulent plants on the ROW in early spring when other vegetation is dormant. Dog legs in the pipeline and woody debris left behind will offset any effects the clearing for the pipeline may have.

### ***Displacement during Construction***

During construction of the project, heavy equipment clearing the ROW and excavating the trench for the pipeline could displace all or most bears from the vicinity of the project to habitat farther from the project (0.5-1.0 miles or farther). This displacement would temporarily (during construction) reduce foraging and security habitat and increase competition among bears for habitat more secure from human activities. Competition that would result from displacement of bears away from the project area could increase mortality risk for bears. Female grizzlies with cubs would become more vulnerable to conflicts with male bears, resulting in death or injury to both the female and cubs.

Bears may be forced into closer contact with humans near East Glacier, campgrounds, and at local ranches.

To reduce the potential that displaced bears would come into conflict with other bears, construction of the project would take place in late summer and early fall, when the greatest amount of habitat in the BMU is accessible to bears. By late summer and early fall, many high-elevation meadows, avalanche chutes, and shrub fields are free of snow and provide forage for grizzly bears. Although bears would be displaced as a result of construction, the probability of a displaced bear encountering another bear would be reduced as bears become dispersed more widely throughout the BMU. In spring and early summer, bears tend to be more concentrated at lower elevations (e.g., project area) because snow at higher elevations prevents foraging.

### **Determination of Effects**

The proposed project **may affect, but is not likely to adversely affect** the grizzly bear. Proposed mitigation measures including road closures, restriction of camping to designated sites at Red Eagle Campground, intensified garbage management, and special management of an 80-acre parcel on the shore of Two Medicine Lake would reduce potential impacts to grizzly bears from increased mortality risk associated with illegal shooting, habituation, habitat loss, and displacement. Road closures and closure of the pipeline ROW to motorized traffic in summer and winter would increase habitat security for grizzly bears in the project area.

Over the long term (i.e., following construction and revegetation of the ROW), habitat security along the pipeline routes would likely improve over existing conditions with proposed mitigation measures.



## **Canada Lynx (Threatened)**

A proposed rule to list the Canada lynx as threatened under the Endangered Species of Act of 1973 (Federal Register, Vol. 63, No. 130) was published July 8, 1998. A six-month extension to the rule was granted on July 8, 1999. The final decision to list the lynx as threatened was published in the Federal Register on March 24, 2000.

Lynx occur throughout the Rocky Mountains of Montana, primarily in Douglas-fir, spruce-fir, and fir-hemlock forests (Ruediger et al., 2000). In western Montana and northern Idaho, lynx habitat generally occurs at elevations above 4000 feet.

Lynx tend to be solitary animals that use early successional plant communities at high elevations for foraging and mature to old-growth forests with downed trees for denning. The abundance and distribution of lynx are closely linked with snowshoe hares, their main prey (Ruggiero et al., 2000).

In winter, lynx do not appear to hunt in openings, where lack of above-snow cover limits habitat for snowshoe hares (Ruediger et al., 2000). Generally, lynx prefer to forage in forest stands that are from 10 to 30 years old, with a high density of young conifers or branches that protrude above the snow. Older forests with a substantial understory of conifers or shrubs and young trees that provide dense cover that touches the snow in winter also provide good-quality lynx foraging habitat. Large open areas, whether human-caused or natural are usually avoided by lynx (Ruggiero et al., 2000). Lynx seem to prefer to move through continuous forest.

Lynx prey mainly on snowshoe hare, and the well being of lynx populations seems to be correlated with snowshoe hare populations. Lynx also prey on ruffed grouse, red squirrels and other rodents, and infrequently deer.

Snowshoe hare population densities reach their peaks in young, dense, moist coniferous forests that provide cover, protection from predators, and browse during all seasons. After a stand matures, less light reaches the forest floor and shrubs and small trees become less dense. Mature stands provide less food and cover for hares and their populations decline. During times of hare scarcity, lynx depend on alternate food sources, especially red squirrels. Populations of red squirrels are highest in mature, closed-canopy forests with large amounts of coarse woody debris and good cone production.

The value of foraging habitats varies based on stand age and structure and changes as stands undergo ecological succession. Some foraging habitat may support high densities of snowshoe hares, whereas other foraging habitat is unproductive hare habitat

Maternal denning habitat, usually associated with old-growth montane forests, is usually limited throughout the range of lynx. Large amounts of large coarse woody debris provide escape and thermal cover for kittens. During the first few months of life, kittens are left alone while the female lynx hunts. Downed logs and overhead cover provide

protection of kittens from owls, hawks, and other predators. This habitat structure must be available in lynx home range, because kittens continue to require protective cover when they are old enough to travel. No old-growth forest would be affected by the proposed project, but isolated sites with large trees, snags, or piles of woody debris may provide suitable denning habitat for lynx.

Though not limited to roadless areas, lynx may be affected by human access into their habitat, especially during winter and the denning season. The extent and magnitude of disturbance that affects lynx is not known, but lynx do not appear to avoid roads. Although lynx may not avoid roads, roads can negatively affect lynx by allowing human disturbance in denning habitat and increasing access for hunting and trapping. Lynx cannot be legally trapped or hunted, however, illegal trapping or hunting could occur. Also, trapping of other furbearers could result in inadvertent capture or injury of lynx. Plowing or packing snow on roads and trails might also allow competing carnivores to more readily enter lynx habitat thus increasing competition for prey.

Currently, there are roads and trails that allow access to the study area and surrounding habitat during both summer and winter. Although none of the roads and trails in the study area appear to be groomed for snowmobile use, they are extensively used by snowmobiles and cross-country skiers which tends to pack the snow surface. These packed surfaces may increase competition among lynx and other predators.

Lynx have been documented to use habitat within the project area. Two lynx were observed about 2 miles northwest of East Glacier (Dan Carney pers. com. 2001) and tracks have been seen in the vicinity of the project. Blackfoot Fish and Wildlife Department trapping records indicate that trappers harvested seven lynx in the area west of East Glacier, in the two-year period before they were listed under the Endangered Species Act. Glacier National Park records indicate that a family of lynx was observed in the Two Medicine area within the last year. Analysis of DNA in hair samples resulted in two lynx being identified near the boundary of Glacier National Park and the Blackfoot Reservation.

The mixed conifer habitats in the northern part of the project area near Two Medicine Lake appear to be the most productive lynx habitat, however, lynx have been observed in aspen habitat in the project area (Dan Carney pers. com. 2001). The entire western part of the project area, above 4,000 feet elevation appears to be productive lynx foraging habitat.

### **Effects Analysis**

Potential effects to lynx could result from alteration of habitat, displacement from habitat by human activities, increased competition with other carnivores (e.g., coyotes) and alteration of prey abundance and distribution (Buskirk et al., 1999). Approximately, 4-5 acres of foraging habitat would be lost as a result of ROW clearing and construction of other facilities.

Although not well documented, studies suggest that competition with other carnivores (e.g., coyote, bobcat, and mountain lion) can adversely affect lynx (Buskirk et al 1999). Lynx are better adapted than these carnivores to deep snow conditions. Construction of roads and use of roads in winter and packed snow surfaces (e.g., cross-country ski trails and snowmobile trails) can increase competition between lynx with other carnivores by allowing them improved access to habitat with deep snow, better suited to lynx

Areas proposed for disturbance have limited potential for denning due to the scarcity of large amounts of woody debris. Removal of the forest canopy likely would not reduce potential denning habitat because most trees are relatively young with few large snags and large downed logs that could provide maternal denning sites.

Woody debris will be left behind in piles to provide denning sites for the lynx as well as habitat cover for the snowshoe hare.

The proposed action could increase human access into lynx foraging habitat. The pipeline ROW would provide human access mainly in winter for skiers and snow mobilers, but also during other seasons for hikers, mountain bikers, hunters, and other recreationists. Increased human access would not likely affect lynx denning because no suitable denning habitat would be affected.

Under current conditions existing roads are used by snowmobiles and provide access for coyotes into lynx habitat in winter when snow is deep. Coyotes and other carnivores (e.g., bobcat and mountain lion) that may compete with lynx are able to access parts of the project area near existing roads. With construction of the pipeline between Two Medicine Lake and East Glacier, there is a high probability that snowmobilers would use the pipeline ROW as a trail and increase winter access for carnivores that could compete with lynx. The proposed prohibition of snowmobile use of the ROW would prevent increased access. Signs would be placed at potential access points on the ROW informing the public that the ROW is closed to snowmobiles. Like other road closures, the Blackfeet Department of Fish and Wildlife would enforce closures.

### **Determination of Effects**

The proposed project **may affect, but is not likely to adversely affect** lynx. Proposed mitigation would offset the potential for impacts to lynx habitat and reduce mortality risk.

### **Gray Wolf (Endangered)**

The project area is part of the gray wolf recovery zone identified in the Northern Rocky Mountain Wolf Recovery Plan (1987). Although the project area has suitable wolf habitat, no denning or rendezvous sites have been identified. There is no evidence of pack activity in the project area, but individual wolves have been documented by tracks to be transient in the project area (Dan Carney pers. com. 2001). Wolves in the project area are probably dispersing from packs outside of the project area. Although wolves

prey on moose, elk, and white-tailed deer in the project area, a limiting factor in the establishment of a wolf pack may be the low ungulate wintering populations that would serve as a prey base.

### **Effects Analysis**

The proposed project would remove forest cover from a linear strip of habitat; however, this alteration would have a negligible affect on abundance of prey (e.g., moose, deer, and elk) or the potential for wolves to use surrounding habitat. Increased human access into forested habitat may increase the potential for wolf mortality through illegal trapping or shooting. However, this risk would be slight since wolves do not regularly use the project area.

### **Determination of Effects**

The proposed project **would not affect** the gray wolf. There are no known wolf packs in the project area, or den sites, and no rendezvous areas

### **Bald Eagle (Threatened)**

The project area is in the Upper Missouri Recovery Zone (Montana Bald Eagle Management Plan July 1994). Bald eagles are present as both seasonal migrants and nesting populations. Good bald eagle nesting habitat includes an adequate prey base, large mature trees to support nests, and low levels of human disturbance. Nest trees are usually larger than surrounding trees and located near water. Perch sites are usually in large trees or snags located close to foraging areas and nests.

Bald eagles sometimes use traditional communal roosts in winter, especially during periods of severe weather. These roosts can be located in large trees at the head of sheltered draws and may be many miles from bodies of water. Bald eagles are opportunistic foragers whose primary food are fish and waterfowl. They also prey on birds, mammals, and big game carrion (especially during winter).

Feeding areas with abundant prey are essential components of bald eagle habitat. Areas where prey is concentrated such as fish spawning areas, lake inlets and outlets, or fish concentrations below reservoirs are particularly attractive to eagles (Montana Bald Eagle Working Group 1991).

The site of the water intake at Two Medicine Lake does not have large trees for perching near the proposed intake. The intake and pumping station would be constructed in grassland with patches of aspen and mixed conifer. The site is currently part of a developed campground.

A pair of bald eagles has nested for the last several years on the northwest shore of Two Medicine Lake, about two miles from the proposed water intake (Dan Carney pers. com.

2001). The home range of this nesting pair (i.e., 2.5-mile radius from the nest) includes the site of the proposed water intake. Habitat use by this breeding pair (foraging) includes all of Two Medicine Lake and extends down the Two Medicine River to at least Two Medicine Falls (Dan Carney pers. com. 2001).

Although a pair of bald eagles has been regularly nesting on Two Medicine Lake (Glacier National Park Bald Eagle Operational Plan and Habitat Management Guidelines 1999), it appears that heavy snow in April of this year destroyed the nest. If the eagles do not build an alternative nest, they will probably not nest this year (Rick Yates, Biological Technician, Glacier National Park, pers. com. 2001). It is likely that a new nest would be constructed near the upper end of Two Medicine Lake where most suitable nesting trees (i.e., large conifers or cottonwoods) are located.

### **Effects Analysis**

The proposed project (i.e., water intake and pumping station) would not affect the nest site of bald eagles on Two Medicine Lake. The nest is far enough away (more than 2.5 miles) that noise and human activity associated with construction of the water intake and pumping station would have negligible effects on nesting and brood rearing.

Foraging bald eagles could likely be displaced from an area around the intake and pumping station during construction. The extent to which this pair of eagles would be displaced would depend on their tolerance to disturbance. Eagles vary in tolerance to human presence and activity depending to some extent on how accustomed they are to humans and human activity.

Displacement during construction would reduce the foraging area of these eagles to an unknown extent. Specific foraging areas favored or often frequented by bald eagles in the project area have not been identified.

The potential for adversely affecting eagles would be reduced by constructing the intake in the fall following nesting and brood rearing.

### **Determination of Effects**

The proposed project **would not affect** bald eagles.

### **Piping Plover (Threatened)**

Piping plovers are shorebirds that nest and forage on sparsely vegetated shorelines of streams, lakes, alkali wetlands, mud flats, reservoirs, and playas (Reel et al 1989). Although piping plovers have been reported from the Reservation at Alkali Lake, more than 30 miles from the project area, none are known to be present in the project area. Suitable habitat for piping plovers may be present at in the project area at prairie potholes along Highway 2. Several of the potholes have rocky, sparsely vegetated shorelines, habitats often selected for piping plovers for nesting.

### **Effects Analysis**

No potential piping plover habitat (i.e., potholes or ponds in prairie grasslands) would be affected by the project. The pipeline segment, for about 3 miles west of Browning, is adjacent to several prairie potholes but does not encroach on wetlands habitat that may be potential piping plover habitat.

### **Determination of Effects**

The proposed project **would not affect** piping plovers.

### **Mountain Plover (Proposed for Threatened Listing)**

The mountain plover was proposed for listing as threatened under the Endangered Species Act of 1973, as amended, on February 16, 1999 in the Federal Register. The population of mountain plovers has declined by more than 50 percent since 1966 to fewer than 10,000 birds. The decline is due to a combination of factors, including replacement of grasslands by agricultural and urban areas and the decline in prairie dogs (U.S. Fish and Wildlife Service, News Release of February 12, 1999, posted on Internet).

Mountain plovers are closely associated with short-grass prairies (Finch 1992). It prefers grassy areas devoid of shrubs with vegetative height less than 4 inches (Dechant et al 2001). Frequently, short grass habitats modified by grazing ungulates, prairie dogs, or fires are selected over surrounding areas for nesting. Mountain plovers prefer sites with broad, level topography but they also nest in mountain foothill habitats of Montana, around livestock watering sites (Clark et al 1989).

The most likely habitat for mountain plovers in the project area is along the easternmost 8-mile segment of the pipeline to Browning. This part of the project crosses foothill and prairie grasslands. There are no prairie dog colonies in this part of the project but ground squirrels are common and reduce the vegetative cover to some extent. This habitat appears to be marginal nesting habitat for mountain plovers because of the high density of grass over most of the area. Mountain plovers typically prefer nesting sites that are nearly devoid of vegetation (e.g., heavily grazed areas or prairie dog colonies).

During field reconnaissance studies on May 10, 2001, no mountain plovers were observed on the proposed area. The Montana Natural Heritage Program (1996) does not list mountain plovers occurring in Glacier County or adjoining counties. Mountain plovers usually return to breeding sites between mid-March and mid-April (Dechant et al 2001).

### **Effects Analysis**

Pipeline associated with the proposed project would be placed in native grasslands that appears to be unsuitable or marginal mountain plover nesting habitat.

### **Determination of Effects**

The proposed project **would not affect** mountain plovers.

### **Swift Fox (Candidate for Threatened Listing)**

Swift fox are closely linked with prairie dog colonies and concentrations of ground squirrels and other small mammals in prairie habitats. Early records indicate that swift fox were once common and widespread in prairie grasslands of the Browning-East Glacier area (Knowles et al 1995). High-quality swift fox habitat is present along the pipeline segment Two Medicine River to Browning.

Swift fox have been re-introduced to the Blackfeet Reservation several times since 1998. Swift fox were introduced in the southeastern part of the Reservation, more than 30 miles from the project area, and have expanded their range to include the project area. In 2000 and 2001, a pair of swift fox denned in the barrow pit on south side of Highway 2, about one mile east of the junction of Highway 2 and Morning Gun West Road. This pair successfully raised a litter of pups both years. The pups were frequently seen near the den site (Dan Carney pers. com. 2001). This den site would not be affected by the project.

### **Effects Analysis**

The portion of the proposed project that traverses prairie grasslands (about 8 miles west of Browning) could affect potential swift fox denning and foraging habitat through construction of the pipeline. Pipeline construction could temporarily displace swift fox from potential foraging habitat during the construction phase of the project. If swift fox are denning in the immediate vicinity of the project, it is likely that construction activity would displace adults away from the den, at least during daytime periods of construction. Displacement could prevent the adults from securing adequate food for young foxes or prevent adults from adequately caring for their young. This effect would be short-term (i.e., during construction) and have negligible influence on the ability of swift fox to secure prey in adjacent undisturbed habitats. If trenching for pipeline construction were to destroy a den, swift fox pups could experience direct mortality.

### **Determination of Effects**

Because construction would not take place during the swift fox denning season (April – July) the proposed project **would not affect** swift fox.

### **Ute Ladies' Tresses (Threatened)**

Ute ladies' tresses is an orchid that grows in wetlands and swales in broad, open valleys, at margins with calcium carbonate accumulation. This species occurs in Idaho, Washington, Nevada, Utah, and Montana. In Montana it has been found at 11 locations

in wetlands along the Jefferson, Beaverhead, Ruby, Gallatin, and Madison rivers. Wetlands on the study area that may have suitable habitat for this orchid, however, the study area is well outside of the known distribution of this species in Montana.

#### **Effects Analysis**

Although the proposed project would be constructed through wetlands that could harbor Ute ladies' tresses, it is unlikely that the species occurs in the project area. All known records of occurrence are several hundred miles away in central Montana wetlands.

#### **Determination of Effects**

The proposed project **would not affect** Ute ladies's tresses. It is unlikely that the project area is within its range in Montana.

#### **Water Howellia (Threatened)**

Water howellia is an aquatic plant that grows in wetlands such as vernal pools, glacial ponds, and oxbow sloughs. Wetlands in the study area may have suitable habitat for this species, however, the study area is well outside of the known Montana distribution of this species in the Swan River Valley (Lake County).

#### **Effects Analysis**

Although the proposed project would be constructed through wetlands that could harbor water howellia, it is unlikely that the species occurs in the project area. All known records of occurrence are in the Swan Valley.

#### **Determination of Effects**

The proposed project **would not affect** water howellia.



**Summary of Impacts and Compensation  
Listed Species that May that Be Affected by the Project**

<b>Species</b>	<b>Concern</b>	<b>Compensation</b>
Grizzly Bear	Displacement from habitat during construction (short term effects)	Construct in fall. Close 13.2 miles of road. Manage 80 acres adjacent to project for conservation.
Grizzly Bear	Loss of habitat during operation of treatment plant and water intake (long term effects in displacement zone)	Manage 80 acres, adjacent to project area for conservation. Restrict camping to designated areas at Red Eagle Campground
Grizzly Bear	Mortality risk during construction (short term effects from shooting and bears killing other bears)	Construct in fall. Road closures. Prohibit guns on construction sites. Manage waste on construction sites.
Grizzly Bear	Mortality risk during operation of intake and treatment plant (long term effects from increased bear interactions – living space for bears reduced )	Construct dog-legs (bends) in pipeline. Revegetate all but 10-foot wide strip of ROW. Road closures. Restrict camping at Red Eagle Campground. Manage 80 acres for conservation. Manage trash and refuse in and near project area to reduce availability to bears.
Lynx	Loss of foraging habitat along pipeline in forested areas (short term effects)	Revegetate ROW and manage 80 acres for conservation
Lynx	Increased mortality risk along pipeline in forested areas	Road closures. Dog legs in pipeline. Revegetate pipeline.
Bald Eagle	Displacement from foraging habitat around intake	Construct in fall

## **CUMULATIVE EFFECTS**

Cumulative effects are those effects of future tribal, state, or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the proposed water development project (50 CFR 402.02). Future activities that are reasonably certain to occur in the proposed project area are livestock grazing, logging, and increased residential development. Effects from logging would over the short term (5-10 years) reduce habitat security for grizzly bear and lynx, but would increase food availability for both species as forest regrowth occurs. Early seral stages of ecological development of forest communities provide abundant vegetation food sources for bears and also provide excellent habitat for snowshoe hares, the primary food of lynx. Roads providing access to logging sites would pose the greatest effect to grizzly bears because

of increased human access and associated risks to bear mortality. Closure of roads after logging would reduce mortality risks.

Livestock grazing in the project area would increase mortality risks to grizzly bears because bears may prey on livestock or be attracted to dead animals. Bears that prey on livestock or feed on dead livestock in close proximity to humans have a high risk of mortality due to control actions taken to reduce threats to humans and livestock. Livestock grazing has been an ongoing activity in the project area for many years. It is not envisioned that future livestock grazing would differ from current practices.

Mitigation proposed for the proposed water development project would over the long term increase security for both grizzly bears and lynx. Special management of 80 acres of habitat for conservation purposes (e.g., exclusion of logging and livestock grazing) and closure of roads would provide a net improvement for lynx and grizzly bears following completion of the proposed water development project.

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